

Work Order ID 148463

148463

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June 30, 2016 2:50:09 PM

Item ID: D2199-25 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Strut
Start Date: 7/8/2016 Start Qty: 3.00 ***3*** Cust Item ID:
Required Date: 7/15/2016 Req'd Qty: 3.00 ***3*** Customer:
Reference:

Approvals: Process Plan: SL Date: 7/4/16 Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2199	F								

100 0.03 DAS 30 9-89 3 JUL 07 2016
100 NC BRAKE
Brake NC Memo 0.10
Brake NC Punch per Dwg. D2199 and Spec Control Dwg D2638
Debur

120 0.00
120 QC5- Inspect part completeness to step on W/O
QC Memo 0.01 (3) DAS 38 9-89 JUL 08 2016
Quality Control

130 0.00
130 White Gloss(Ref:4.3.5.2) per OSI005 4.3-Steel
Powdercoat M 134631
Powder Coating Memo 0.09
START TIME: 11:15
OVEN TEMPERATURE: 400°
FINISH TIME: 11:45
3 16-07-11 23:38

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause			FAULT CATEGORY		
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐				

Work Order ID 148463

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Item ID: D2199-25

Accept

N900040100

Setup

Start

NS1

Revision ID:

Stop

NS2

Item Name: Strut

Start Date: 7/8/2016 Start Qty: 3.00

3

Cust Item ID:

Required Date: 7/15/2016 Req'd Qty: 3.00

3

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run

Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

140

QC3- Inspect Part Finish

0.00

140

QC

Memo

0.01

Quality Control

3DAS
38
9-89
JUL 11 2016

150

Identify as per dwg & Stock Location: 57352 0.00***150***

Packaging

Memo

0.01

Packaging

3

JUL 12 2016

160

QC21- Final Inspection - Work Order Release 0.00

160

QC

Memo

0.05

Quality Control

16/7/12

DAS
21
9-89
JUL 12 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐					
OTHER : ☐									

Picklist Print

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Work Order ID: 148463

148463

Parent Item: D2199-25

D2199-25

Parent Item Name: Strut

Start Date: 7/8/2016

Required Date: 7/15/2016

Start Qty: 3.00

Required Qty: 3.00

Comments: IPP REV:A 13.03.05 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304TR0.750W.049		Purchased	No				f	183.9928		5.242105			
M304TR0 750W 049													
304 RD Tube .750 x .049W													

**
DAS
30
9.88
3.89

JUL 07 2016

Location	Loc Qty	Loc Code
GA002	178.4200852	
M132270	0.00001	
M133131	0.0007242	
M133509	14.210211	
M133700	2.794323	
M133914	5.98516	
M134138	1.1364496	
M134212	8.5144235	
M134306	10.6695789	
M134528	3.7518392	
M134604	49.23105	
M134824	29.650527	
M134993	12.4757888	7
M135093	40	
MAT	5.5727347	
M133400	5.5727347	

DQA: _____ Date: _____

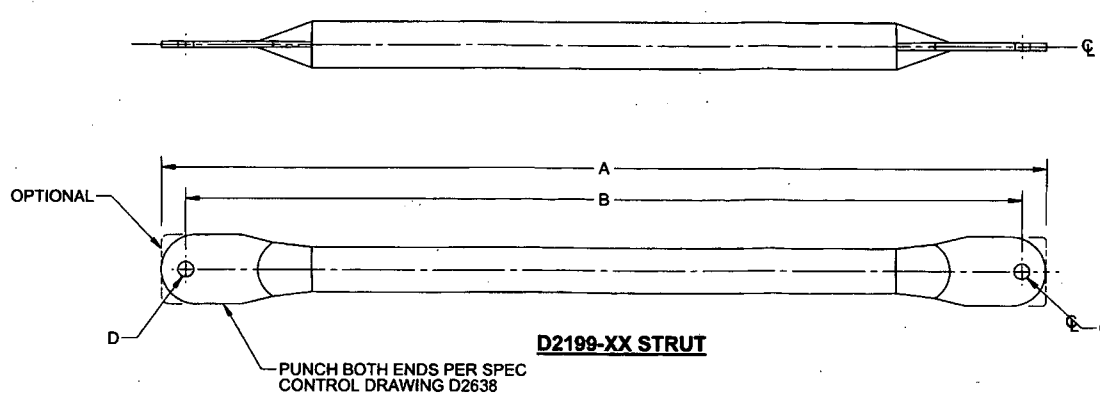


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		
Root Cause				FAULT CATEGORY					
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								



PART NUMBER	A	B	C	D	WEIGHT (LBS)	FINISH
D2199-1	18.30	17.50	Ø 0.257	Ø 0.257	0.56	NOTE 2
D2199-3	5.80	5.00	Ø 0.257	Ø 0.257	0.17	NOTE 2
D2199-5	22.64	21.84	Ø 0.257	Ø 0.316	0.69	NOTE 2
D2199-7	14.74	13.94	Ø 0.257	Ø 0.257	0.45	NOTE 2
D2199-9	16.52	15.72	Ø 0.257	Ø 0.257	0.50	NOTE 2
D2199-11	23.60	22.80	Ø 0.257	Ø 0.316	0.72	NOTE 2
D2199-13	15.96	15.16	Ø 0.257	Ø 0.257	0.49	NOTE 2
D2199-15	17.57	16.77	Ø 0.257	Ø 0.257	0.54	NOTE 2
D2199-17	28.05	27.25	Ø 0.257	Ø 0.316	0.86	NOTE 2
D2199-19	18.90	18.10	Ø 0.257	Ø 0.257	0.58	NOTE 2
D2199-21	10.80	10.00	Ø 0.257	Ø 0.257	0.33	NOTE 2
D2199-23	26.18	25.38	Ø 0.257	Ø 0.316	0.81	NOTE 2
D2199-25	19.93	19.13	Ø 0.257	Ø 0.257	0.61	NOTE 2
D2199-27	27.34	26.54	Ø 0.257	Ø 0.316	0.84	NOTE 2
D2199-29	21.11	20.31	Ø 0.257	Ø 0.257	0.65	NOTE 2
D2199-31	15.55	14.75	Ø 0.257	Ø 0.257	0.45	NOTE 3

NOTES:

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL ROUND TUBING Ø 0.750 X 0.049 WALL PER ASTM A213 OR ASME SA213 OR ASTM A269 REF DART SPEC. M304TR0.750W0.049
- 2) FINISH: POWDER COAT "WHITE" (4.3.5.2) PER DART QSI 005 4.3
- 3) FINISH: POWDER COAT GREY SANDTEX (4.3.5.6) PER DART QSI 005 4.3
- 4) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) UNITS: INCHES UNLESS OTHERWISE NOTED
- 6) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 7) IDENTIFICATION: IDENTIFY WITH DART P/N "D2199-XX" AND B/N BXXXXXX PER QSI 044, 6.5.
- 8) WEIGHT: PER CHART
- 9) MAKE PER TEMPLATE DT2199-XX WHERE XX IS THE RESPECTIVE DASH NUMBER.

RELEASED

2015 FEB 04

ECN 15-522 915-522

F	INCORPORATED E1, REFORMATTED AND REDRAWN. ADDED -31, ADDED GREY SANDTEX FINISH.	AJS	14.09.26
E	ADDED -23 AND -25 PER TSR AS88M, ADDED TEMPLATE & SPEC CTRL. DWG REDRAWN IN CAD	KE	98.04.28
D	ADDED -21	N/A	N/A
C	ADDED -17 AND -19	N/A	N/A
B	ADDED -11, -13 AND -15	N/A	N/A
A	NEW ISSUE	JB	1993
REV.	DESCRIPTION	BY	DATE
DESIGN	JB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	AP	DRAWING NO.	REV. X F
MFG. APPR.	DD	D2199	SHEET 1 OF 1
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	STRUT DETAILS	NTS
DATE	14.09.26	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR DISSEMINATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

INSPECTION SHEET

			Revised by	Approved
Rev	Date	Change	KJ	
B	14.07.31	New Issue		